Enhancing Customer Retention Strategies: Telco Churn Analysis with Tableau

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Abstract

This report presents an analysis of customer churn data for a telecommunications company. The Telco customer churn data contains information about a fictional telco company that provided home phone and Internet services to 7043 customers in California in Q3. It indicates which customers have left, stayed, or signed up for their service.

The objective is to understand the factors contributing to customer churn and conduct analysis Tableau to create visualizations and dashboards that highlight key insights and patterns in the data.

Introduction

Situation: Customer churn is a critical issue for telecommunications companies (and any company in general), as acquiring new customers can be significantly more expensive than retaining existing ones.

Task: This project aims to analyze customer churn data to identify the key factors driving churn and build interactive dashboards to present these findings to the company.

By understanding these factors, the company can take proactive steps to improve customer retention.

Methodology

The analysis was conducted using a dataset containing various customer attributes such as demographic information, service usage patterns, and account information.

Dataset Link: IBM Community

[1] The steps involved in the analysis are as follows:

1. Data Cleaning and Merging : Handling missing values, correcting inconsistencies, ensuring data quality and merging data tables using Python.

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[1] https://community.ibm.com/community/user/businessanalytics/blogs/steven-macko/2019/07/11/telco-customer-churn-1113

2. <u>Exploratory Data Analysis (EDA)</u> : Visualizing data distributions, relationships, and patterns using Tableau.

3. <u>Dashboarding</u> : Create interactive dashboard and stories to present to the stakeholders and devise strategies to mitigate customer churn issue.

Results

The results of the analysis are presented in the form of visualizations and dashboards created in Tableau. Also, further recommendations to tackle the customer churn issue would be given.

Data Cleaning and Merging

- Downloaded the dataset from the provided link, renamed them appropriately, and combined them either in Tableau or using other tools.

- Performed data cleaning on each individual table and removed unnecessary columns.

- Imputed missing values in the `Churn Reason` and `Churn Category` columns of the `Status` table with `Not Applicable`, as missing values were only in customers who did not churn.

- Ensured data completeness (no missing values), accuracy (checked for inconsistencies and removed them if available), and removed unnecessary columns that do not add value to the tables.

- Merged all tables using JOINS based on the common field `Customer ID` to create a final table containing information from all these 5 tables combined:

    - Services

    - Status

    - Demographics

    - Location

    - Population

- Saved the merged table as a CSV file named `telco_final_data.csv`, which would be imported into Tableau for dashboard creation.

Exploratory Data Analysis (EDA)

We performed our Exploratory Data Analysis (EDA) using Tableau. This EDA provided valuable insights into the data. Below are some of the key findings:

# of Customers	# of Churned Customers	Churn Rate
7,043	1,869	26.54%

Figure 1: Customers, Churners, Churn Rate

- We had a total of **7043** customers, where the number of churned customers was **1869**, with an overall churn rate of **26.54%** (Figure 1).
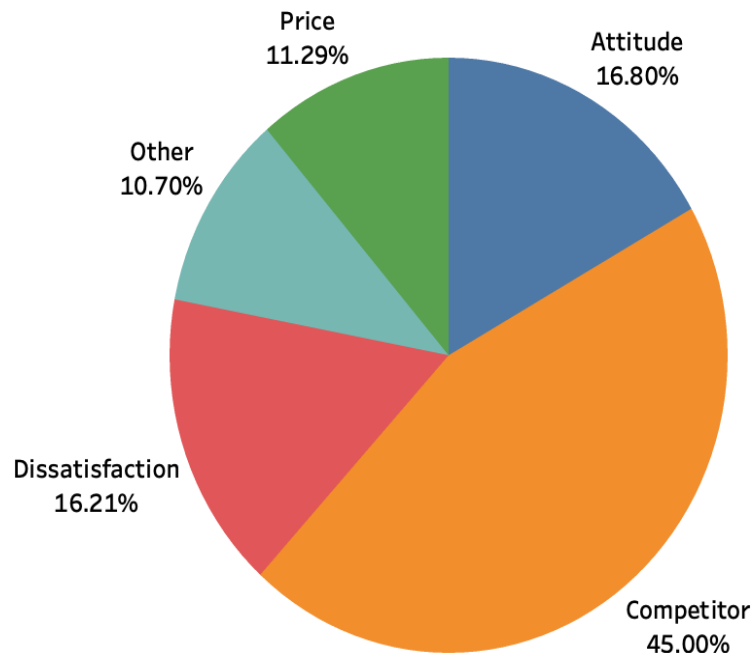

Figure 2: Churners by Category

- **Competitor** (45%), **Attitude** (17%) and **Dissatisfaction** (16%) are the most popular categories for customer churning. We would look deeper into each of them individually (Figure 2).
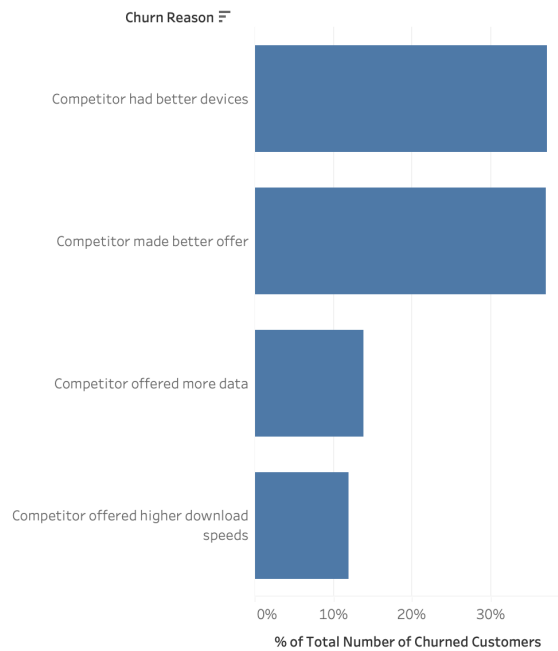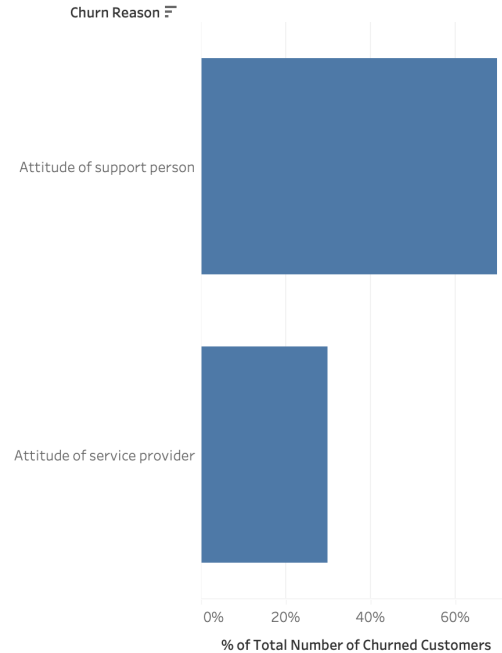
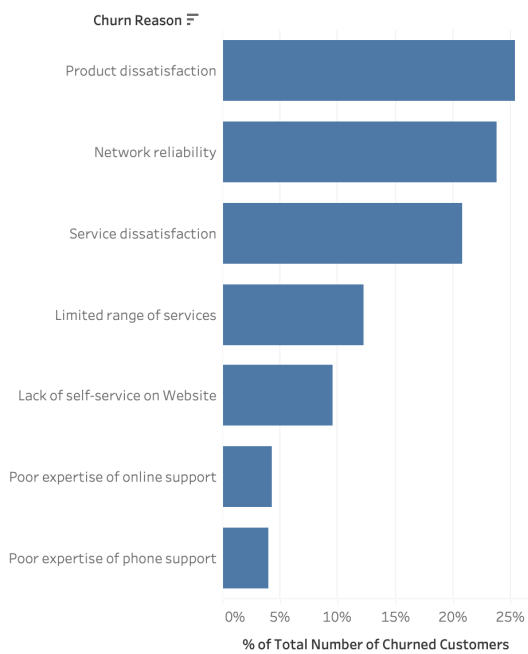Figure 3: Competitor (subcategory)

Figure 4: Attitude (subcategory)

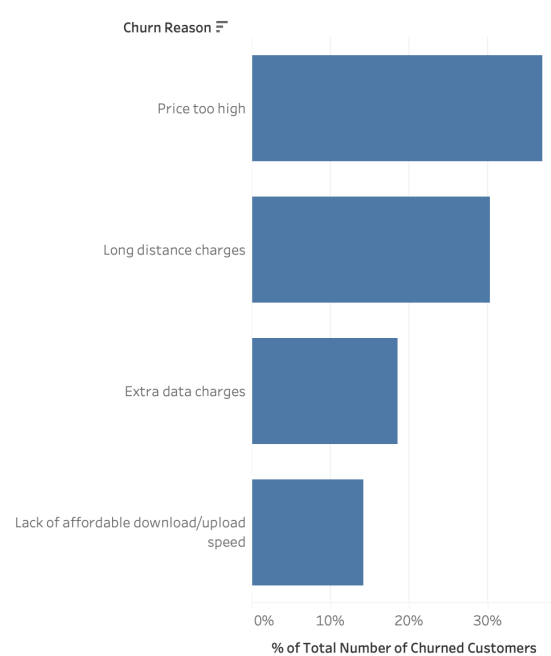Figure 5: Dissatisfaction (subcategory)

Figure 6: Price (subcategory)

- In individual churn category:
    - **Competitor**: Competitor had better devices, better offers, more data, and higher download speeds (Fig 3).

– **Attitude**: Attitude of support person and service provider (Fig 4).

– **Dissatisfaction**: Product dissatisfaction, Network Reliability, Service Dissatisfaction (Fig 5).

– **Price**: Price too high, Long Distance Charges, Extra Data Charges, and Lack of Affordable Upload and Download speed (Fig 6).

• From the company's end in terms of services, Attitude and Dissatisfaction are major red flags for churning. These are service issues and can be worked upon by the company.
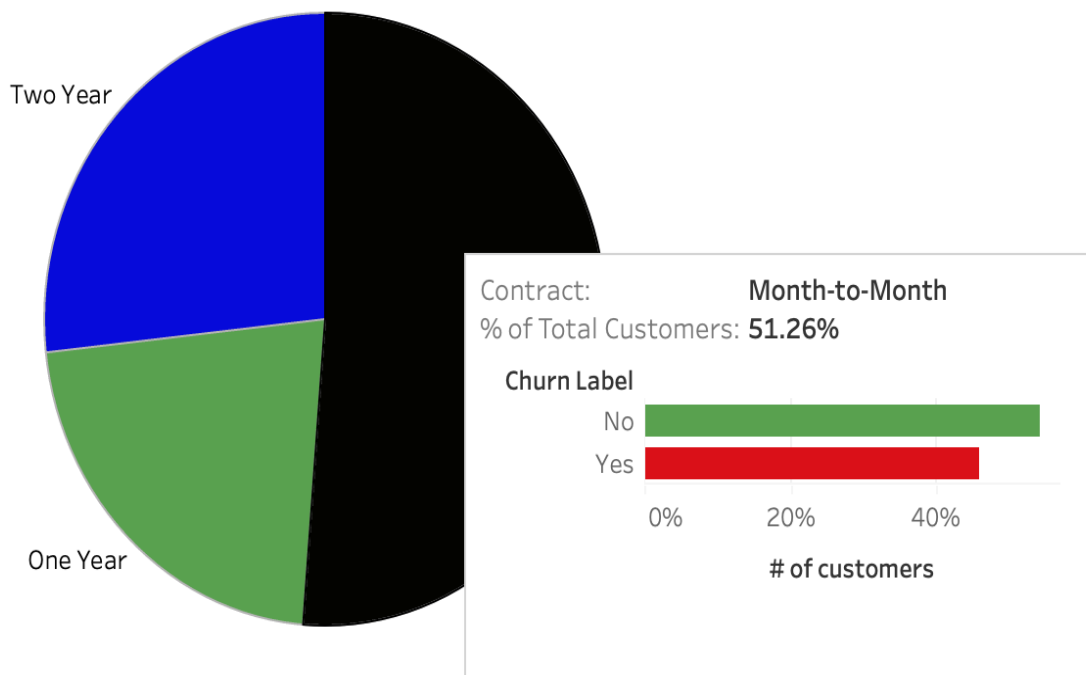

Figure 7: Month-to-Month contract

• In Contract, **One Year** and **Two Year** contract customers have significantly lower churn rate (11% and 3% respectively) compared to **Month-to-Month** contract customers with 46% churn rate. Also, Month-to-Month customers comprise 51% of the customers overall. (Fig 7).
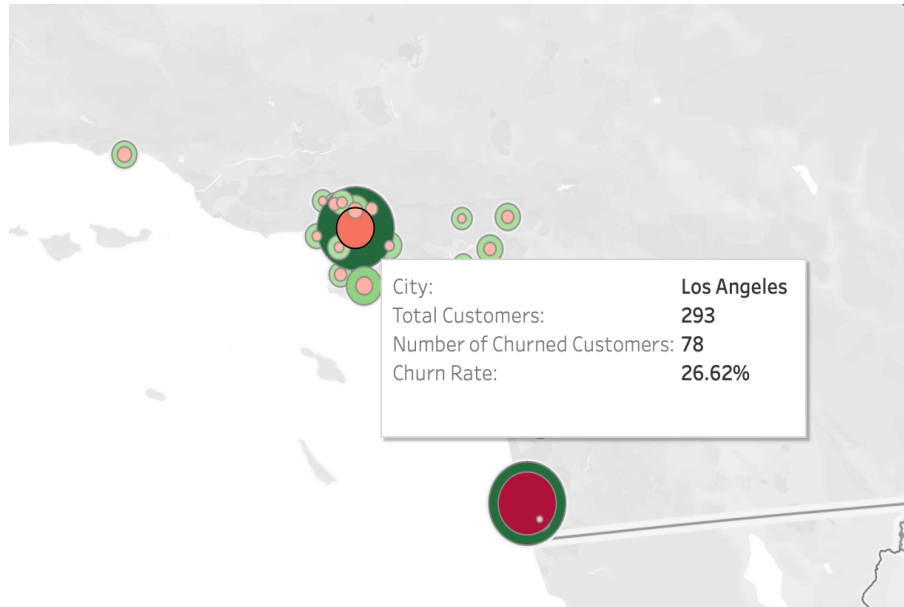
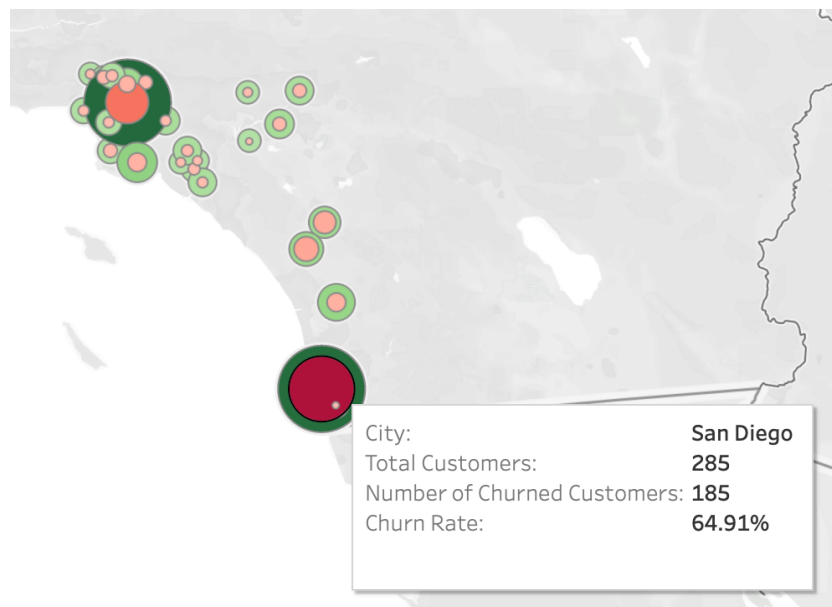Figure 8: Cities vs Customer Churn (Los Angeles)

Figure 9: Cities vs Customer Churn (San Diego)

- **Los Angeles** (Fig 8) has the highest number of customers, followed by **San Diego** (Fig 9), San Jose, Sacramento and San Francisco. But contrary to assumption, **San Diego** has the highest churn rate (65%). All the other cities have a churn rate nearly around the overall churn rate.

  A competitor has entered these cities where the company has many customers, and already started to offer better devices and offers, which are a major reason for customers to churn in these cities.

Senior Citizen	Churn Rate	Total Customers
No	23.61%	5,901
Yes	41.68%	1,142

Figure 10: Senior citizen vs Churn Rate

- **Customers over 65** (Senior) have **nearly double** the churn rate than the ones who are below 65 (Senior = 42%, Non Senior = 24%), thus, it is more likely for a senior citizen to churn. This has been further confirmed in the Age Brackets chart (Fig 10).

Unlimited Data	Churn Rate	Total Customers
No	15.97%	2,298
Yes	31.65%	4,745

Figure 11: Unlimited Data vs Churn Rate

- Customers with Unlimited Data have a churn rate 32% compared to ones with no unlimited data 16%, which means customers **with unlimited data are twice as likely to churn compared to ones with no unlimited data** (Fig 11).

Looking deeper into the reasons, the churned customers mentioned that the competitor had better devices and offers.
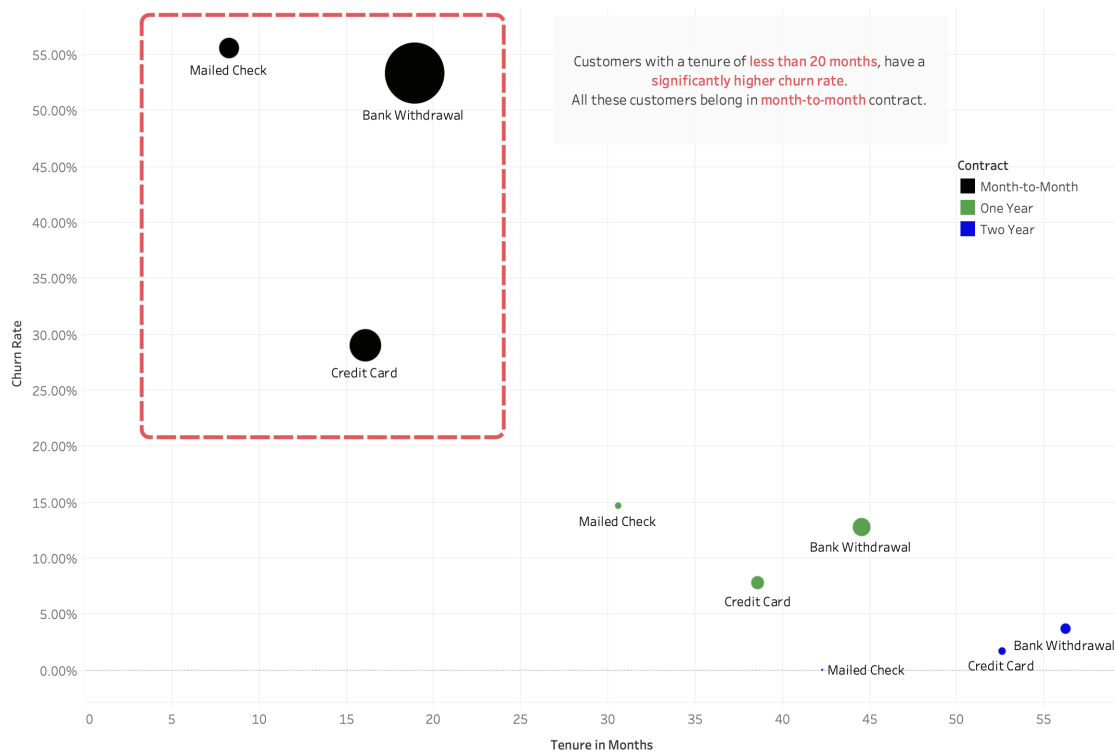
Figure 12: Tenure, Payment Method, Contract Type vs Churn Rate

- Customers with Average Tenure (in months) nearly 20 months (or roughly two years) which means these are customers which started using company services only recently, have churned. And these are all month-to-month contract users.

  Their major reason is **competitor offering better devices and better offers** (external reasons) and **attitude of support person** (internal reason) as a major reason to churn.

  There is a **significantly lower churn rate** in customers with **average tenure over 20 months** (churn rate nearly halves) and their churn reason is either Competitor or Product Dissatisfaction.

  Note: We can engineer a feature with Yes/No value for tenure above 20 months as Yes (as they have lower churn rate) and No (as they have higher churn rate) during feature engineering.
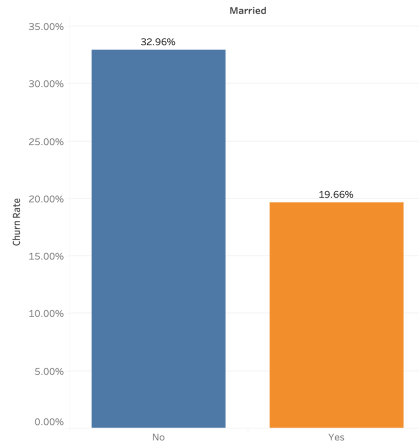
Figure 13: Married vs Churn Rate

- **Married customers have significantly lower churn rate** (nearly 20%) than unmarried customers (roughly 33%).

- This would be good feature in predicting whether the likeness of customer to churn.
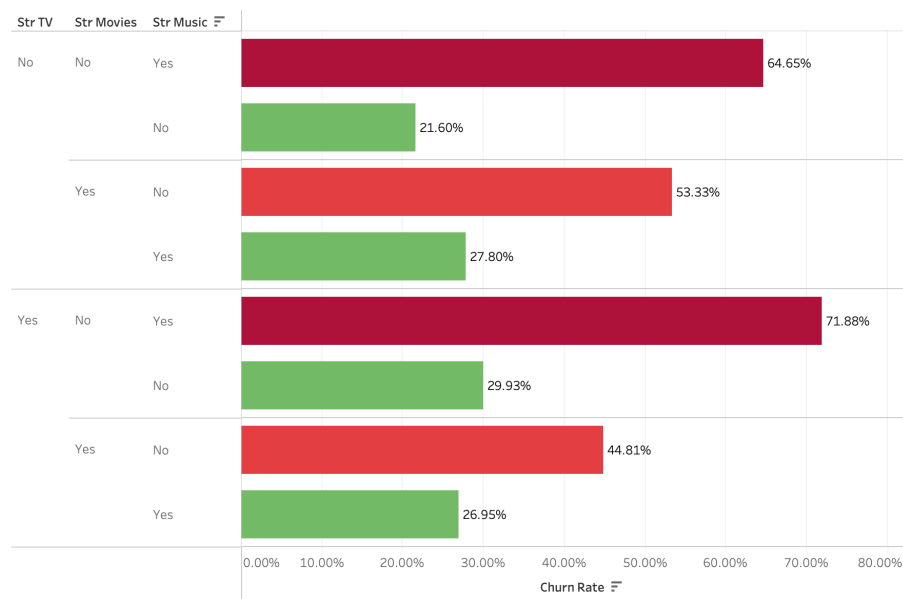

Figure 14: Streaming services vs Churn Rate

- Regardless of customer having using a streaming TV (Str TV), if they use internet service for streaming music, their churn rate is very high (more than 60%). If they use the services for streaming movies, then too their churn rate is very high (more than 40%)

  This clearly indicates company's **poor music and movie streaming services**.
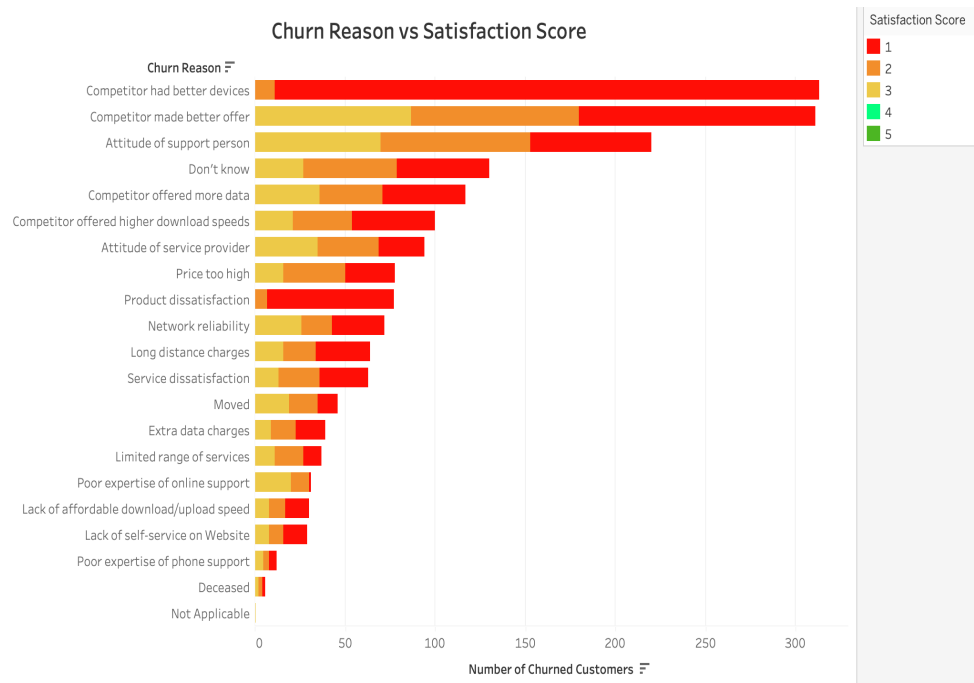
Figure 15: Churn Reason vs Satisfaction Score

- Of the customers that left, their Satisfaction Scores are all 1 or 2 for Churn Reason = Competitor had better devices and Product dissatisfaction.

  This clearly indicates that **company's devices are problematic** (such as modems) and have been giving poor experience to the customers.
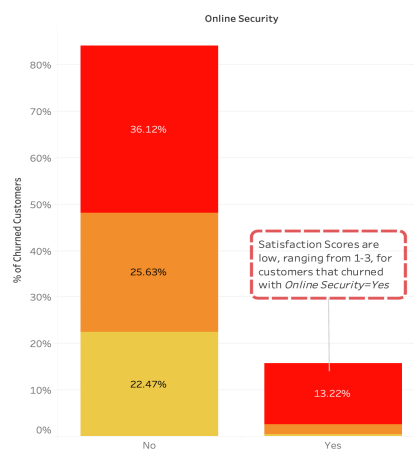

Figure 16: Online Security vs Satisfaction Score

- Customers with Online Security feature has given a very low satisfaction score, i.e., 1, clearly indicating that the **company's online security services sucks**.
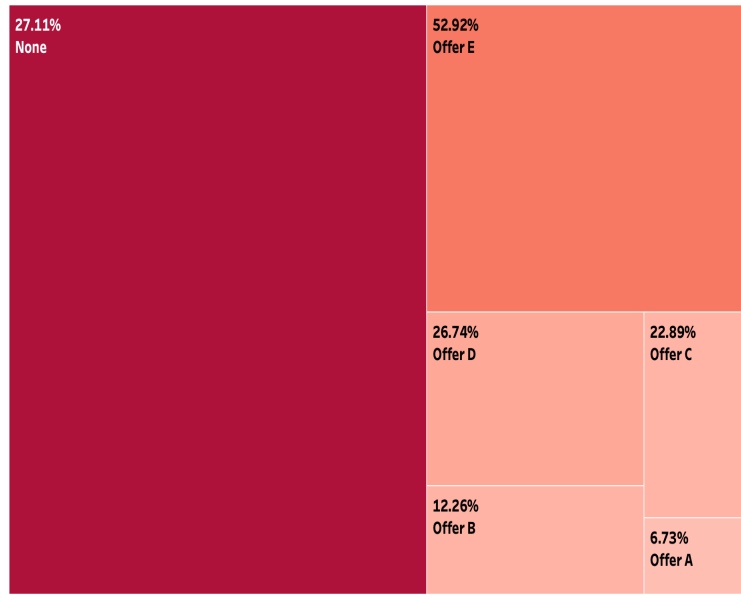
Figure 17: Offer vs Churn Rate

- Customers with offer A have lowest churn rate (6.7%) comparing to customers who have no offers (27.1%).

  Therefore, in order to retain more customers, **providing offer A to more customers would be a good strategy**.
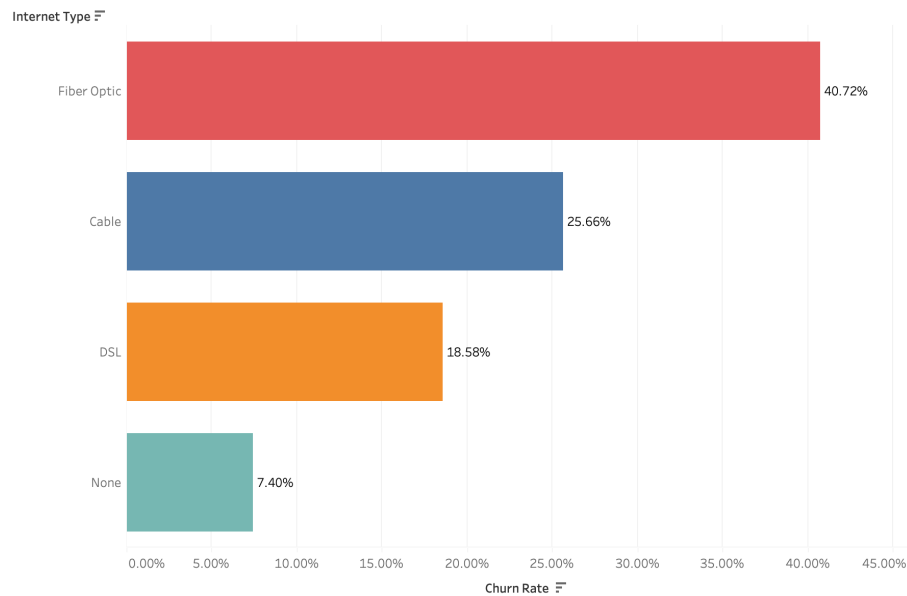

Figure 18: Internet Type vs Churn Rate

- Majority of churned customers (nearly 40%) had fiber optic as their internet type followed by Cable (26%) and DSL (19%).

Looking deeper into the churn reason for these churned customers, **Competitor had better devices**.

It can be recommended to the company to improve its devices and connection facilities, to facilitate customer retention.
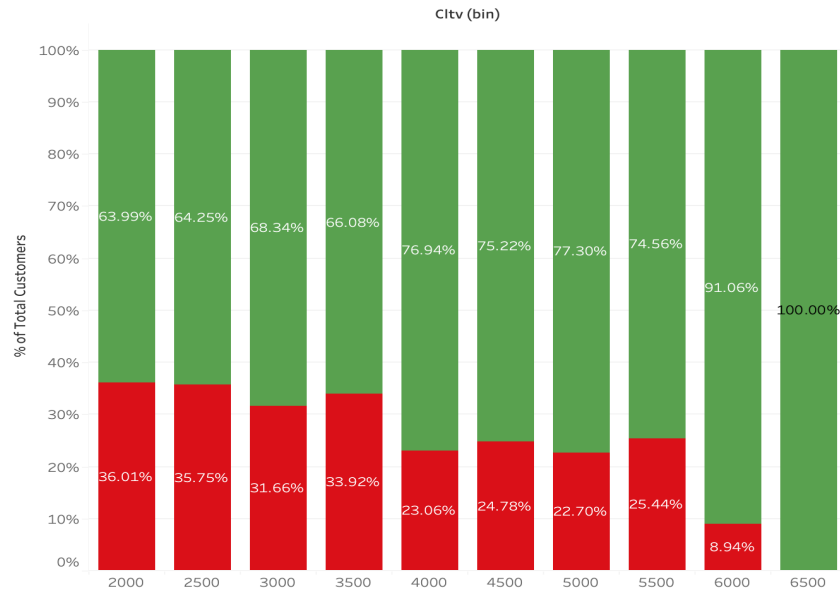
Figure 19: CLTV (Customer Life-time Value vs Churn Rate (red)

- Customers with lower CLTV (≤ 3500) have higher churn rate than the above 3500 CLTV.

  This indicates that customer with **lower lifetime value are more likely to churn when compared to high value customers** (> 3500)
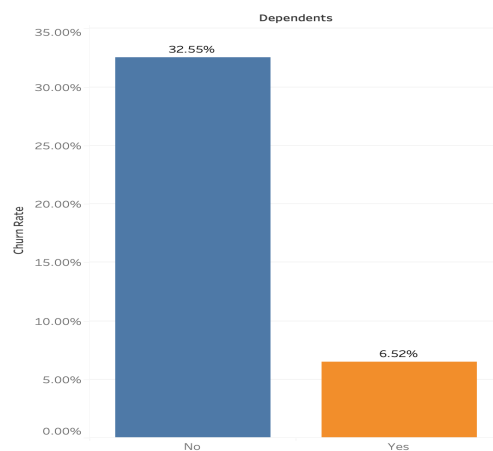

Figure 20: Dependents vs Churn Rate

- Customers with **no dependents are four times more likely to churn** comparing to the ones with dependents.

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Figure 21: CLTV vs City

- Los Angeles followed by San Diego, Sacramento, San Jose and San Francisco, are the cities where the highest overall customer values is received from.

  Thus, if company can start making changes and launch their retention campaign in these places.

Areas around **Los Angeles** and **San Diego** have overall high revenue customers.
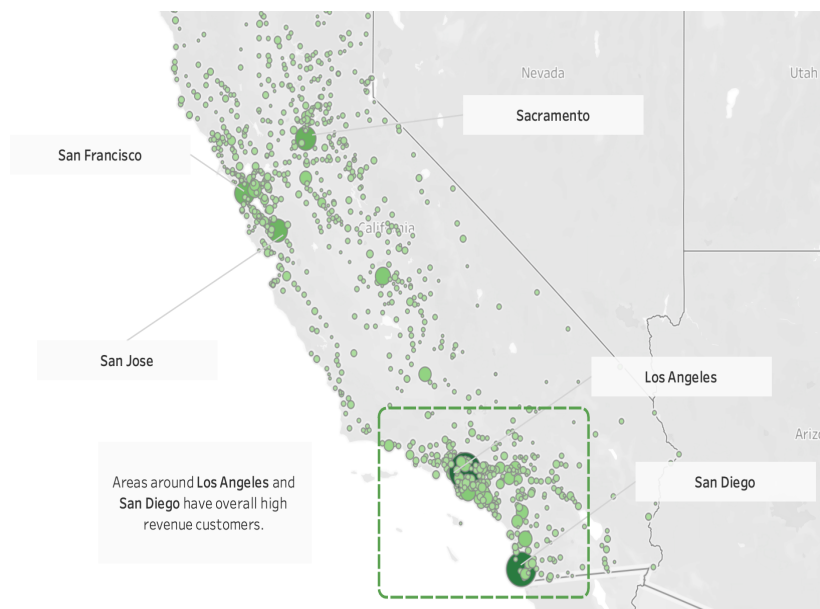
Figure 22: Cities vs Revenue
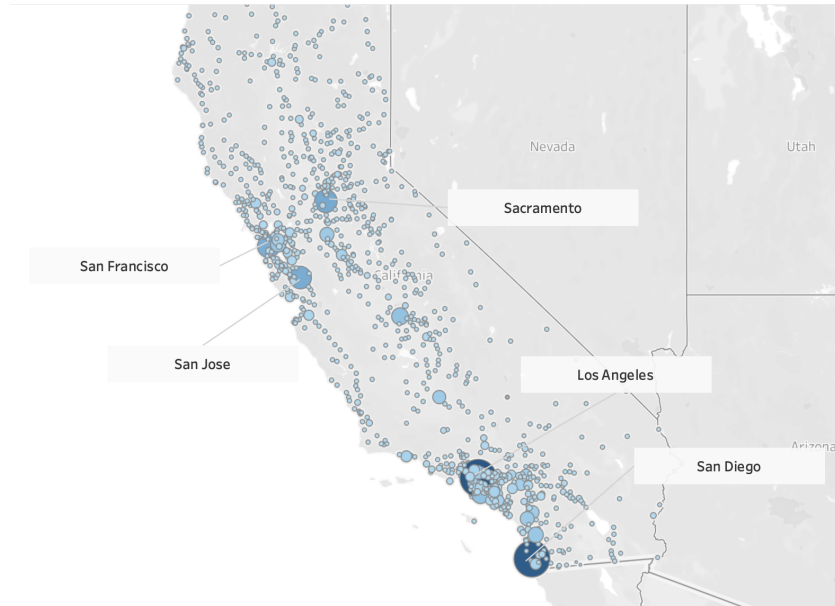
- Los Angeles followed by San Diego, Sacramento, San Jose and San Francisco, are the cities where the highest overall high revenue is received from.

Also, areas around LA and San Diego are high revenue areas, so campaigning must be done in these areas first.

Dashboarding

Below are the snapshots of overall dashboards (with titles):

Figure 23: Overview

Figure 24: Age brackets

Figure 25: Payment Method & Contract Type

Figure 26: Services vs Churn

- All above dashboards, have filters such as **Contract, Churn Category, Payment Method, Married, Unlimited Data** and **Tenure in months** to drill down valuable insights.

These can be presented to stakeholders.

Other Valuable Insights

- Nearly 92% of customers are month-to-month contract type who had "Competitor had better devices" as their churn reason.
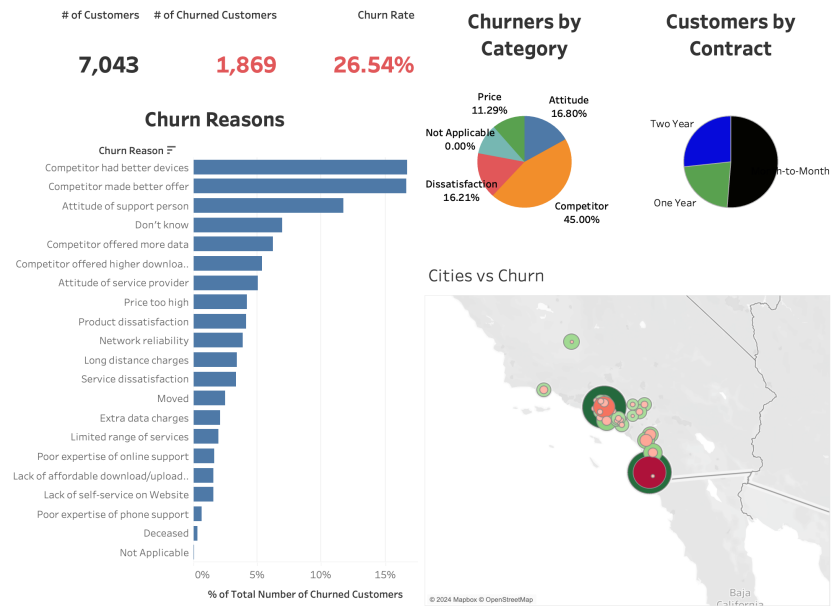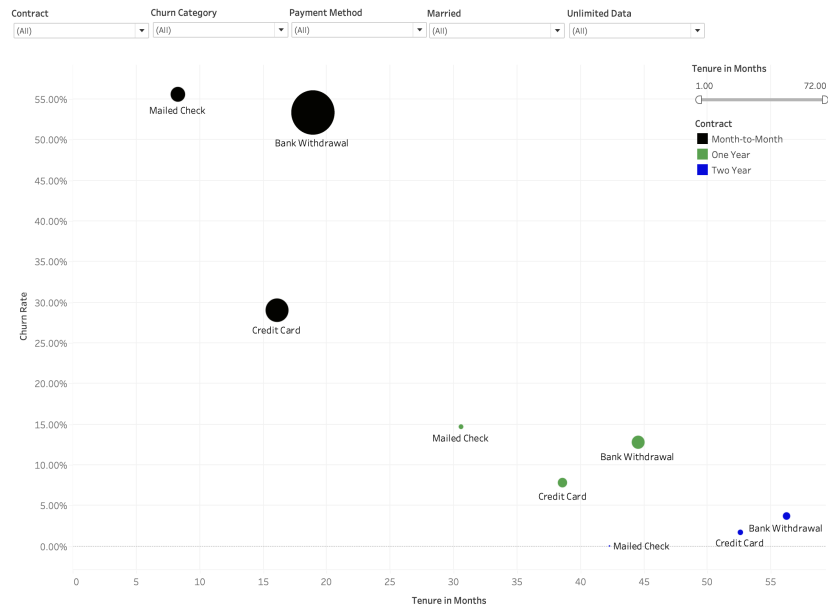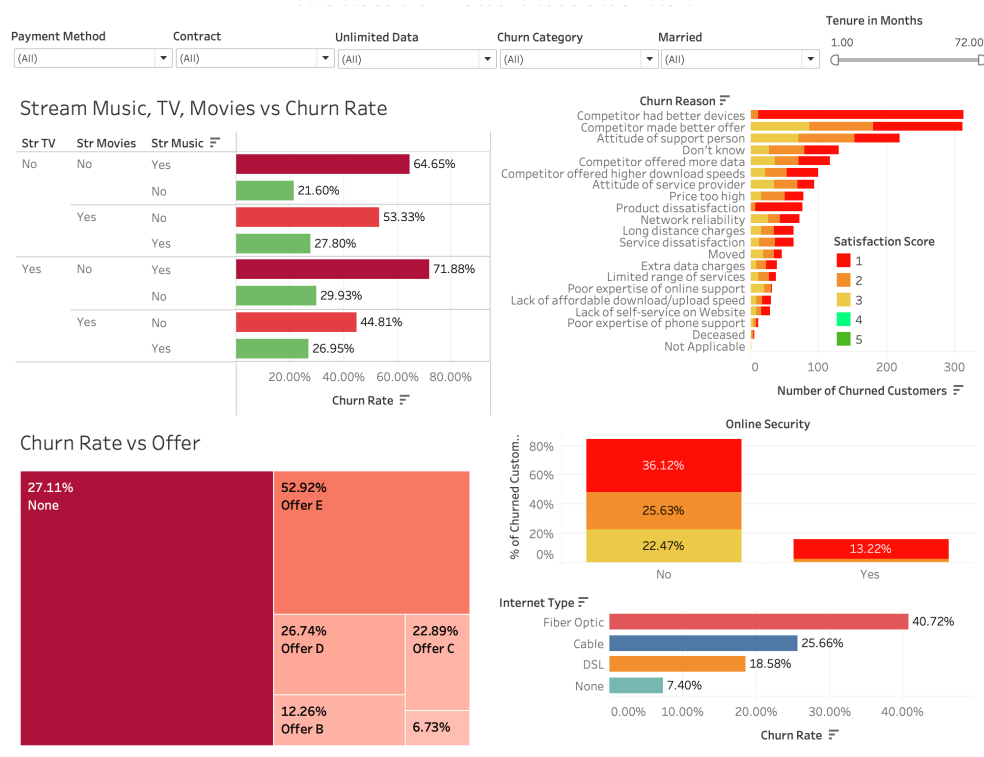
- Customers with a tenure of over 2 years have lower churn rate comparing to the new customers (with tenure upto 2 years)

- Month-to-Month contract customers are clearly not satisfied with streaming services of the company (as they might be using the service for streaming purpose mostly).

  Also, looking deeper it can be seen that these customers have fiber optic internet, hence, company must look more into fiber connection problems to ensure better experience.

RECOMMENDATIONS

- **Attitude Issues:** Invest in training programs for customer support representatives to improve their attitude and interaction quality with customers. Implement regular feedback mechanisms to monitor and enhance service quality.

- **Service Reliability:** Address product dissatisfaction and network reliability issues by investing in infrastructure improvements and ensuring higher standards of service delivery.

Enhance Competitiveness Against Rivals

- **Better Offers and Devices:** Conduct market research to understand competitors' offerings and devices. Introduce competitive pricing, better data plans, and technologically advanced devices to match or surpass competitors' offerings.

- **Promotional Campaigns:** Launch targeted promotional campaigns in high churn areas (e.g., San Diego) emphasizing the improved value and benefits of your services compared to competitors.

Contract Incentives

- **Encourage Longer Contracts:** Provide incentives for customers to switch from month-to-month contracts to one-year or two-year contracts. Offer discounts, additional services, or exclusive deals to long-term contract customers.

- **Loyalty Programs:** Develop loyalty programs that reward long-term customers with perks such as free upgrades, discounts, or exclusive access to new features.

Targeted Strategies for Senior Customers

- **Senior-Friendly Services:** Design and promote services that cater specifically to the needs of senior customers, such as simplified plans, senior discounts, and dedicated customer sup-

port for seniors.

- **Community Engagement:** Engage with senior communities through events, sponsorships, or partnerships to build brand loyalty and trust among senior customers.

Improve Streaming Services

- **Enhance Streaming Quality:** Invest in improving the quality and reliability of streaming services for music and movies. Ensure high bandwidth and minimal buffering for a better customer experience.

- **Exclusive Content:** Consider offering exclusive content or partnerships with popular streaming platforms to provide added value to customers using streaming services.

Product and Feature Improvements

- **Device Upgrades:** Address the issues with current devices by investing in better quality modems and other hardware. Ensure that new devices meet high performance and reliability standards.

- **Online Security:** Improve the online security feature by enhancing its effectiveness and ease of use. Consider partnerships with established cybersecurity firms to bolster your security offerings.

Custom Offers and Promotions

- **Expand Offer A:** Given that customers with Offer A have the lowest churn rate, expand this offer to a broader customer base. Tailor similar attractive offers to different customer segments based on their usage patterns and preferences.

Focus on Fiber Optic and Cable Customers

- **Address Fiber Optic Issues:** Since a significant portion of churned customers used fiber optic internet, investigate and resolve any underlying issues with fiber optic services. Ensure consistent high-speed internet and minimal service interruptions.

- **Improve Customer Satisfaction:** Regularly survey fiber optic and cable customers to understand their pain points and swiftly address any concerns related to service quality or device performance.

Geographical Targeting

- **City-Specific Strategies:** Develop targeted strategies for cities with high churn rates, such as San Diego. Consider localized promotions, service improvements, and community engagement initiatives to retain customers in these areas.

Focus on High CLTV Customers

- **Priority Support:** Offer enhanced customer support and personalized services to customers with a higher Customer Lifetime Value (CLTV). This can include dedicated account managers, priority service queues, and exclusive offers.

- **Loyalty Programs:** Develop loyalty programs specifically for high CLTV customers, rewarding them with additional benefits, such as discounts, early access to new products, and exclusive content.

- **Retention Campaigns:** Implement targeted retention campaigns aimed at customers with lower CLTV, offering them incentives to stay and increase their engagement and value.

Increase Engagement with Customers Without Dependents

- **Tailored Marketing:** Create marketing campaigns that appeal specifically to customers without dependents, highlighting features and benefits that resonate with their lifestyle and needs.

- **Community Building:** Foster a sense of community among customers without dependents through social events, online forums, and special interest groups, helping them feel more connected to the brand.

- **Customized Offers:** Offer customized packages and promotions that cater to the unique needs of customers without dependents, such as flexible plans and discounts on services they are likely to use.

Strategic Focus on High-Value Cities

- **Local Marketing Efforts:** Concentrate marketing efforts and resources on high-value cities like Los Angeles, San Diego, Sacramento, San Jose, and San Francisco. This can include localized advertising, sponsorships, and community events.

- **City-Specific Promotions:** Develop city-specific promotions and offers to attract and retain customers in these high-revenue areas. Tailor these offers to the preferences and needs of the local customer base.

- **Infrastructure Investments:** Invest in improving infrastructure and service quality in these cities to ensure a superior customer experience. This can include upgrading network reliability, speed, and overall service delivery.

Enhance Customer Experience for All Segments

- **Feedback Mechanisms:** Implement regular feedback mechanisms to gather insights from all customer segments, including those with lower CLTV and without dependents. Use this feedback to continuously improve services and address pain points.

- **Personalized Communication:** Use personalized communication strategies to engage with customers, addressing their specific needs and concerns. Utilize data analytics to send targeted messages and offers.

- **Customer Education:** Educate customers about the value and benefits of your services through webinars, tutorials, and customer success stories. Highlight how your services can enhance their lives and provide value.

Incentivize Long-Term Contracts

- **Contract Offers:** Given the lower churn rate among one-year and two-year contract customers, create attractive offers for month-to-month customers to switch to longer-term contracts. This can include discounted rates, additional features, and loyalty rewards.

- **Bundled Services:** Offer bundled services at a discounted rate for long-term contract customers. This can include combining internet, TV, and phone services into one comprehensive package.

Conclusion

Result: This analysis has provided valuable insights into the factors driving customer churn in the telecommunications industry.

By understanding the key drivers of churn and putting the recommendations into practice the company can take targeted actions to improve customer retention.